

### ABSTRACT OF THE INVENTION

A photovoltaic device and method of making same. A layer of p-doped microcrystalline diamond is deposited on a layer of n-doped ultrananocrystalline diamond such as by providing a substrate in a chamber, providing a first  
5 atmosphere containing about 1% by volume CH<sub>4</sub> and about 99% by volume H<sub>2</sub> with dopant quantities of a boron compound, subjecting the atmosphere to microwave energy to deposit a p-doped microcrystalline diamond layer on the substrate, providing a second atmosphere of about 1% by volume CH<sub>4</sub> and about 89% by volume Ar and about 10% by volume N<sub>2</sub>, subjecting the second atmosphere to  
10 microwave energy to deposit a n-doped ultrananocrystalline diamond layer on the p-doped microcrystalline diamond layer. Electrodes and leads are added to conduct electrical energy when the layers are irradiated.